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**SECTION 08700 – FINISH HARDWARE** (Changes to this section are in the Hardware Schedule)

**PART 1 – GENERAL DESCRIPTION**

**1.1 RELATED DOCUMENTS**

- A. Drawings and General provisions of the Contract, including General and Supplementary Conditions and other Specification Sections, apply to this Section.

**1.2 SUMMARY**

- A. This section includes finish hardware.
- B. Related Work:
  - 1. Threshold Sealant: Division 7 Joint Sealers.
  - 2. Connecting and pulling wires for MAG HOLDERS: Division 16.
  - 3. Connecting and pulling wires for EXIT systems: Division 16.

**1.3 SUBMITTALS**

- A. Hardware Schedule: Within 10 days after receipt of a contract for the finish hardware, prepare a complete schedule and submit, in 6 copies for review.
  - 1. Do not order hardware until a corrected copy of the schedule is returned to the supplier bearing the approval of the Owner.
  - 2. A catalog cut of each different hardware item shall be included with each hardware schedule.
  - 3. This schedule shall indicate the following details:
    - a. Door numbers
    - b. Location
    - c. Size and thickness of door
    - d. Door material
    - e. Frame material
    - f. Hand of door
    - g. Degree of opening
    - h. Type of attachment
    - i. Any other pertinent information regarding the door and the quality and type of hardware to be furnished.
  - 4. No hardware shall be ordered until a corrected copy is returned to the supplier indicating the acceptance of the Owner.
- B. Templates: Within 10 days after receipt of the approved corrected hardware schedule, submit 4 sets of templates and schedules to the wood door and hollow metal door and frame suppliers.
- C. CONTRACT CLOSEOUT SUBMITTALS:
  - 1. Furnish three (3) copies of maintenance manuals covering the finish hardware for this job. Each manual shall consist of printed sheets from the hardware manufacturer bound in a three-ring binder and properly indexed.



2. Include the following information in maintenance manuals:
  - a. Address and telephone number of hardware suppliers.
  - b. Maintenance instruction and parts list for each type of operating hardware:
    1. Locks
    2. Exit devices
    3. Closers
  - c. Warranty: Provide written warranty covering requirements of this section.

#### 1.4 QUALITY ASSURANCE

- A. **SUPPLIER QUALIFICATIONS:** The hardware supplier must have in his/her employment an Architectural Hardware Consultant (AHC), as recognized by the Door and Hardware Institute, with a minimum of 10 years of Architectural Hardware experience, who shall be responsible for the detailing, scheduling, and ordering of the finish hardware for this Contract.
- B. **DESIGN CRITERIA:** Provide Underwriter's Laboratory listed hardware for fire or accident hazard where scheduled or required to maintain rating of openings. Comply with requirements of door and doorframe labels. Comply with NFPA No. 80 and building codes that are used in the area of the project.

#### 1.5 DELIVERY, STORAGE AND HANDLING

- A. Deliver hardware to the job site only after proper provision for storage has been made.
- B. Properly package and clearly label each item to indicate exact location for which intended.

#### 1.6 WARRANTY

- A. Furnish three (3) copies of the following written warranty to be included in Maintenance Manuals:
  1. Warranty against mechanical failure of door closers for a ten-year period, and panic devices shall have three years.
  2. Warranty against failure of parts for all hardware except door closers and panic devices for a two-year period. Warranty shall include cylinder locks.
  3. Starting date for all warranty periods to be date of acceptance of building by owner.

### PART 2 – PRODUCTS

- 2.1 **MANUFACTURERS:** Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include, but are not limited to:

A. Butts:	Bommer, Hager, Stanley	BM
B. Exit Devices & Electrical Hdw:	Von Duprin	VD
C. Door Closers:	LCN	LC

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D. Locksets:	Schlage, Best, Corbin	SC
E. Thresholds & Weather-strips:	National Guard, Reese, Zero	NG
F. Stops:	Glynn Johnson, Trimco, Rockwood	GJ
G. Overhead Stops:	Glynn Johnson, Quality, Trimco	GJ
H. Door Trim:	Quality, Rockwood, Trimco	Q
I. Auto Flush Bolts, Coordinators:	Glynn Johnson	GJ
J. Electro/Mechanical Closer/Holder:	LCN	LC

## 2.2 SCHEDULED HARDWARE

- A. Requirements for design: Grade, function, finish, size and other distinctive qualities of each type of Builders Hardware is indicated in the Hardware Schedule at the end of this section. Products are identified using hardware designation numbers.
- B. Manufacturer's Product Designation: One or more manufacturers are listed for each hardware type required. An Asterisk (\*) before a manufacturer's name indicates whose product designation is used in the Hardware Schedule for purposes of establishing minimum requirements. Provide either the product designated or where more than one manufacturer is listed, the comparable product of one of the other manufacturers that comply with requirements including those specified elsewhere in the section.

## 2.3 MATERIALS AND FABRICATION

- A. Hand of Door: The drawings show the direction of slide, swing or had of each door leaf. Furnish each item of hardware for proper installation and operation of the door movement as shown.
- B. Base Metals: Produce hardware units of the basic metal and forming method indicated using the manufacturer's standard metal alloy, composition, temper and hardness. Do not furnish "optional" materials or forming methods for those indicated except as otherwise specified.
- C. Fasteners: Manufacture hardware to conform to published templates generally prepared for machine screw installation. Do not provide hardware, which has been prepared for self-tapping sheet-metal screws except as specifically indicated.
1. Furnish screws for installation with each hardware item. Provide Phillips flat-head screws except as otherwise indicated. Finish exposed (exposed under any condition) screws to match the hardware finish or if exposed in surfaces of other work to match the finish of such other work as closely as possible including "prepared for paint" in surfaces to receive painted finish.
    - a. Sex Bolts: Install door closer, door holders and exit devices on wood doors by means of through bolts and sex nuts.
  2. Provide concealed fasteners for hardware units that are exposed when the door is closed except to the extent no standard units of the type specified are available with concealed fasteners. Do not use thru bolts for installation where the bolt head or the nut on the opposite force is exposed in other work except where it is not feasible to adequately reinforce the work.

## 2.4 HINGES, BUTTS AND PIVOTS

- A. Templates: Provide only template-produced units.
- B. Screws: Furnish Phillips flat-head all purpose or machine screws for installation of units except furnish Phillips flat-head all purpose or wood screws for installation of units into wood. Finish screw heads to match surface of hinges or pivots.
- C. Hinge Pins: Except as otherwise indicated provide hinge pins as follows:
  - 1. Steel Hinges: Steel Pins.
  - 2. Non-ferrous Hinges: Stainless steel pins.
  - 3. Exterior Doors: Non-removable pins.
  - 4. Interior Doors: Non-rising pins.
  - 5. Tips: Flat button and matching plug finished to match leaves.
- D. Number of Hinges: Provide number of hinges indicated but not less than three (3) hinges per door leaf for doors 90" (2290 mm) or less in height and one additional hinge for each 30" (750 mm) of additional height.
- E. Size of Hinge leaves: 4 ½" (113 mm) high, except provide 5" (125 mm) for doors over 3'-6" (1050 mm) wide.
- F. Width of Hinges: Shall be sufficient to clear trim projection when door swings 180 degrees ( $\pi$  radians).
- G. Fire doors over 8'-0" (2450 mm) shall have heavy weight hinges.
- H. All hinges shall comply with the current issue of the American National Standard for butts and hinges ANSI A156.1.

## 2.5 KEYING

- A. The hardware supplier shall make available to the Owner a representative for the purpose of consulting and reviewing the project's keying requirements and make a written proposal of the complete key system.
- B. Proposed key plan shall include expansion potential for Owner's future requirements.
- C. All exterior doors shall be constructed master keyed.
- D. Keys Required: Furnish quantity of keys as follows:
  - 1. Three (3) change keys.
  - 2. Ten (10) construction keys.
  - 3. Six (6) new master keys.
  - 4. Four (4) new grand master keys
- E. Grandmaster and master keys shall be stamped with their respective set symbols.
- F. All keys shall be nickel silver.

## 2.6 CYLINDRICAL TYPE LOCKSETS

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- A. All locksets and latchsets shall have steel cylindrical case with interior parts made of steel or bronze. No plastic, diecast or aluminum mechanisms will be allowed.
- B. All steel parts shall be bronze plated or coated with zinc dichromate to resist rusting and corrosion.
- C. Locksets shall have access to the cylinder without removing the lockset from the door.
- D. Furnish wrought boxes with all lock strikes.
- E. Strikes lips shall not project more than 1/8" (3 mm) beyond the frame at single doors or face of inactive leaf at pairs of doors.

## 2.7 DEAD LOCKS

- A. Deadlocks shall be cylindrical or tubular type with interior parts made of steel or bronze.
- B. All steel parts shall be bronze plated or coated with zinc dichromate to resist rusting and corrosion.

## 2.8 CLOSERS AND DOOR CONTROL DEVICES

- A. Surface type door closers shall be fully hydraulic, full rack and pinion action with cast iron case with ten-year warranty.
- B. Separate adjusting valves shall be provided for closing speed, latching speed and back-check.
- C. Adjusting valves shall be concealed and adjustable only with special wrench and shall be seated with "O" type rings.
- D. All closers shall be multi-sized closers. Exterior and interior doors and fire rated doors shall have closers that will adjust from size 1 thru 5, and adjust opening force of 5 lbs. (400 N) pressure to open interior doors to meet ADA requirements.
- E. All outswinging doors to be supplied with parallel arm.
- F. Closers must be certified by B.H.M.A. and ANSI as Grade 1 closers.
- G. Manufacturer's Representative shall check the door closers with the owner after project has been turned to owner for adjustment and installation.

## 2.9 EXIT DEVICES

- A. Provide fire exit devices as listed in the "Door Assembly Type List".
- B. All working parts must be made of stamped steel zinc dichromate parts. No diecast, plastic or cast brass parts shall be used.

- C. All devices must meet the following test: Push bar must release with 32 lbs. (140 N) maximum pressure when 250 lbs. (1110 N) of pull is applied against the pull side of door.
- D. Provide all exit devices with roller strikes, dead-latching latchbolts, and a fluid damper (to decelerate push pad on its return stroke thus reducing noises).
- E. Lever trim shall have a clutch breakaway mechanism to disengage lever from operating mechanisms should excess force be applied.

## 2.10 DOOR TRIM UNITS

- A. Material shall be brass, bronze or stainless steel as appropriate for required finish. Brass and bronze material to be 0.050" (1.5 mm) minimum thickness and stainless steel to be 0.050" (1.5 mm) minimum thickness. Edges of plates to be beveled and polished except lower edge can be square.
- B. Kick plates shall be 10" (250 mm) high. Mop plates shall be 4" (100 mm) high and armor plates shall be 4" (100 mm) high and armor plates shall be 42" (1050 mm) high.
- C. Width of plates when applied to push side of door shall be 2" (50 mm) less than door width on pairs of doors and 2" (50 mm) less than door width on single doors. When applied to pull side of door, plates shall be 2" (50 mm) less than door width.
- D. Push Plates: Plate shall be 0.050" (1.5 mm) stainless steel.
- E. Pull plates: Plate shall be wrought bronze 0.050" (1.5 mm) B & S. Grip shall be extruded bronze or stainless located on center of plate.

## 2.11 TOOLS FOR MAINTENANCE

- A. Furnish a complete set of specialized tools as needed for Owner's continued adjustment, maintenance and removal or replacement of finish hardware.

## PART 3 – EXECUTION

### 3.1 INSTALLATION

- A. General: General Contractor shall install all finish hardware.
  - 1. Furnish all items of hardware with attachment screws, bolts, nuts, etc., as required to attach hardware to type of material involved and with finish to match hardware with which they are to be used. Make all attachments to metal by template machine screws.
  - 2. Provide through bolts and sex nuts for door closers, forearm shoes of closers, holding devices and panic hardware mounted on doors or panels.
  - 3. Attach hardware to masonry or concrete with expansion bolts or similar drilled anchors to develop full strength of attached device.

4. Run weather-stripping or sound stripping full height of both jambs and full width of head. Run weather-stripping or sound stripping full height of both jambs and full width of head. Run thresholds full width of opening. Run door bottoms full width of doors. Set expansion anchors in solid masonry, not mortar joints. Install thresholds with continuous threshold anchors cast into slab. Set thresholds in caulking by sealant contractor.
- B. Mounting Heights: As per Steel Door Institute recommendations.
- C. Installation
  1. Pull on opposite side of panic device shall be mounted to coincide with exit device template.
  2. Push plate shall be installed to conceal through bolts of pull.
  3. Install each hardware item in compliance with the manufacturer's instructions and recommendations. Wherever cutting and fitting is required to install hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage and reinstallation or application of surface protections with finishing work specified in the Division 9 Section.
  4. Set units level, plumb and true line and location. Adjust and reinforce the attachment substrate as necessary for proper installation and operation.
  5. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors in accordance with industry standards.
  6. 180 Degree ( $\pi$  radians) Openings: Other than those doors that are restricted to less than 180 degrees ( $\pi$  radians) opening by building or by overhead holders or stops, all butts and/or closer arms shall be of sufficient size to allow full 180 degree ( $\pi$  radians) opening of doors.

### 3.2 PROTECTION

- A. Do not install door silencers, kickplates, push plates, door bottoms, and wall stops until after painting is complete. Loosen locksets and panic hardware prior to painting and re-tighten after painting is complete. Mask all hardware or otherwise protect during painting operation.

### 3.3 ADJUST AND CLEAN

- A. Adjust and check each operating item of hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate freely and smoothly as intended for the application made.
- B. Final Adjustment: Wherever hardware installation is made more than one month prior to acceptance or occupancy of a space or area, return to the work during the week prior to acceptance or occupancy and make final check and adjustment of all hardware items in such space or area. Clean operating items as necessary to restore proper function and finish of hardware and doors. Adjust door control devices to compensate for final operation of heating and ventilating equipment.
- C. Instruct Owner's personnel in proper adjustment and maintenance of hardware and hardware finishes during the final adjustment of hardware.

### 3.4 HARDWARE SCHEDULE

**BLACKFEET COMMUNITY HOSPITAL**  
Expansion & Renovation, Phases 1 & 2  
Browning, Montana  
ROOFTOP HELISTOP AND ELEVATOR

**C168.1**  
102-96-0005  
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A. All items shall be of proper type for attaching securely to type of material on which they occur.

B. Following manufacturers are included in the finish hardware schedule to establish level of quality:

- |                                 |                               |
|---------------------------------|-------------------------------|
| 1. Butts:                       | Bommer                        |
| 2. Panic Devices:               | Von Duprin                    |
| 3. Door Closers                 | LCN                           |
| 4. Locksets                     | Schlage                       |
| 5. Threshold, weather-stripping | National.                     |
| 6. Stops and Trim:              | Glynn-Johnson                 |
| 7. Automatic Operators          | Horton                        |
| 8. Others:                      | Hagar and others as indicated |

C. Finishes:

- |               |                        |
|---------------|------------------------|
| 1. Butts      | US 26 D                |
| 2. Locks      | US 26 D                |
| 3. Panics     | US 26 D US32D PUSH PAD |
| 4. Trim       | US 32 D                |
| 5. Kickplates | US 32 D                |
| 6. Closers    | AL                     |

**GROUP 34**

Door Number: 1559.2, 1559.3

Pair of Vestibule Doors

Each Pair To Have:

Butts	6 ea.	(BM)	BB5004-545N	US26D
Pull Plates	2 ea.	(HG)	93G (3"X12") (75 mm x 300 mm)	US32D
Push Plates	2 ea.	(HG)	90R (3"X12") (75 mm x 300 mm)	US32D
Stops	2 ea.	(GJ)	60W	US26D
Mag. Holder	2 ea.	(LC)	SEM 7850	AL
Closer	2 ea.	(LC)	4011T (for 180 degree opening)	AL
Smoke Seal	2 sets	(NG)	2525 (Head & Jambs)	
Astragal	2 ea.	(NG)	125NA (Door Height)	

**GROUP 35**

Door Number: 2501.1

Single Exterior Door

Each Door To Have:

Butts	3 ea.	(BM)	BB5004-545N	US26D
Rim Cylinder	1 ea.	(SC)	20-022	US26D
Exit Device	1 ea.	(VD)	98NL X SNB	US26D
Closer	1 ea.	(LC)	4111-EDA X SNB	AL
Overhead Holder	1 ea.	(GJ)	100H	US32D
Threshold	1 ea.	(NG)	613 (Width of Opening)	
Weather-strip	1 set	(NG)	127NA (Head & Jambs)	

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Door Sweep	1 ea.	(NG)	200NA (Width of Door)
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**GROUP 36**

Door Number: 0504.1

Pair of Interior Doors  
Labeled

Each Pair To Have:

Butts	6 ea.	(BM)	BB5004-450	US26D
Rim Cylinders	2 ea.	(SC)	20-022	US26D
Exit Devices	1 ea.	(VD)	9827L-F X 994L X SNB	US26D
	1 ea.	(VD)	EL9827L-F X 994L X SNB	US26D
Closers	2 ea.	(LC)	4111-EDA X SNB	AL
Kickplates	2 ea.	(Q)	34" X 10" (850 mm x 250 mm)	US32D
Smoke Seal	1 set	(NG)	2525 (Head, Jambs & Mullion)	

**GROUP 37**

Door Number: 0505.1

Single Interior Door  
Labeled

Each Door To Have:

Butts	3 ea.	(BM)	BB5000-450	US26D
Lockset	1 ea.	(SC)	70PD RHO X 10-025	US26D
Closer	1 ea.	(LC)	4011 X SNB	AL
Wall Stop	1 ea.	(GJ)	60W	US26D
Kickplate	1 ea.	(Q)	34" X 10" (850 mm x 250 mm)	US32D
Smoke Seal	1 set	(NG)	2525 (Head & Jambs)	

END OF SECTION 08700

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